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WINDOW COVERField of the Invention

5 This invention relates to a window cover such as a blind or curtain. The invention has particular application to Roman blinds.

Background Art

10 Blinds and curtains are normally drawn closed or opened by a draw cord which is pulled to cause the blind or curtain to open or close. In many blinds, the draw cord forms a loop at the side of the blind or curtain and extends towards the bottom of the curtain.

15 The loop in the draw cord provides a significant safety hazard, particularly for small children, because a small child may become entangled in the draw cord and strangle.

20 To prevent this from happening, many blinds and curtains now provide draw cords which do not form a loop at the side of a curtain, but rather are cut so that two strands are provided, one of which can be used to open the blind or curtain and the other to close the curtain.

25 However, in some forms of blind it is not possible to do away with the loop-type configuration, or to provide a draw cord which cannot be formed into a loop during some condition of the blind, which may offer a safety hazard.

30 Summary of the Invention

The object of the invention is to overcome this problem.

The invention may be said to reside in a window cover comprising:

- 35 a window cover portion moveable between an open position and a closed position;
 a draw cord for opening and closing the window

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cover; and

a coupling member in the draw cord, the coupling member having a first component with a first engaging portion, and a second component with a second engaging portion for engaging with the first engaging portion, so that, should a load be applied to the draw cord, the draw cord will separate at the first and second components to thereby prevent the formation of a loop which may provide a strangling hazard to a child.

Thus, blinds or curtains which require a looped configuration, or which have a draw cord which can be formed into a loop during operation of the window cover, or when the window cover is in a particular configuration, can still enable the loop configuration to be formed, but if a child becomes entangled in the cord, as soon as any load is applied to the cord, the cord can separate at the connecting member so the cord will not form a strangling hazard.

Preferably the first engaging portion comprises a generally part spherical head portion, and the second engaging portion comprises a generally spherical socket for receiving the spherical head so that when a load is applied to the cord, the head can pull out of the socket.

Preferably the first component comprises a hollow bore having an enlarged diameter portion so that a first portion of the cord can be inserted through the bore and tied to form a knot so that the knot can be pulled back into the bore and located in a large diameter portion, and wherein the other component also has a bore having an enlarged diameter portion so that the other part of the cord can be inserted through the bore and tied to form a knot and so the knot can be pulled back into the large diameter portion.

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Preferably the blind is a Roman blind having a plurality of rings coupled to portions of the Roman blind, the draw cord passing through the rings, and the connector member being dimensioned so that the connector member can also
5 pass through the rings.

In one embodiment of the invention, the coupling member is arranged in the draw cord by connecting the first component to a first part of the draw cord and the second
10 component to a second part of the draw cord.

However, in another embodiment, the coupling member is connected in the draw cord by connecting the first component to the window cover and attaching the second
15 component to the draw cord.

In a second embodiment of the invention, the first component of the coupling member may comprise a triangular shaped body having a pair of oblique arms and a base, a
20 sleeve extending from the oblique arms at the apex of the oblique arms, the sleeve having an internal abutment, and the second component comprises a resilient peg having a pair of legs which have feet for registry behind the abutment so that when the load is applied to the cord the
25 feet can pull over the abutment because of the resilient nature of the peg, and the first and second components can release from one another.

Preferably, the first component is connected to the blind
30 by a saddle which is sewn to the blind and which passes over the base of the triangular body.

In a still further embodiment, the coupling member described above can be arranged so a first part of the
35 cord is connected to the first component and a second part of the cord is connected to the second component with the coupling member being arranged at an upper portion of the

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blind.

Preferably the rings include a split or gap so the draw
cord can pull through the split or gap of the rings when a
5 load is applied to the draw cord.

Preferably the split or gap is defined by a cut in the
ring which is located at a portion of the ring remote from
the blind.

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In one embodiment the gap can be sized larger than the
width or diameter of the cord. However, in the preferred
embodiment the gap is less than the width or diameter of
the cord and the parts of the ring adjacent the cut or gap
15 are resilient so those parts can flex to enable a cord to
pass through the cut or gap when a load is applied to the
cord and the cord in turn applies a load to the rings.

Preferably the rings have indentations to enable the rings
20 to be sewn to the blind so that the rings will not move
through the stitching and therefore displace the split or
gap from a position remote from the blind.

In another embodiment a load take up member is provided in
25 the draw cord for taking up short duration loads applied
to the draw cord to prevent unwanted separation of the
first component from the second component.

Preferably the member comprises a spring.

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Preferably the connector member separates when a load of
more than about 1.5 Kg (about 3 pounds) is applied to the
draw cord.

35 The invention also provides a window cover comprising:
a window cover portion moveable between an open
position and a closed position;

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a draw cord for opening and closing the window cover portion; and

a coupling member having a first component coupled to the window cover and a second component
5 connected to the draw cord, the first component having a first engaging portion and the second component having a second engaging portion for engaging with the first engaging portion, so that, should a load be applied to the draw cord, the draw cord will separate at the first and
10 second components to prevent the formation of a loop which may provide a strangling hazard to a child.

The invention may also be said to reside in a window cover comprising:

15 a window cover portion moveable between an open position and a closed position;

a draw cord for opening and closing the window cover;

20 a load take up member coupled to the window cover;

a coupling member having a first component connected to the load take up member and a second component connected to the draw cord, the first component having a first engaging portion and the second component
25 having a second engaging portion for engaging with the first engaging portion, so that, should a short duration load be applied to the draw cord, the short duration load is taken up by the load member and the first and second components do not separate, but if a longer duration load
30 is applied to the draw cord indicative of a child becoming entangled in the draw cord, the first and second components will separate to thereby prevent the formation of a loop in the draw cord which may provide a strangling hazard to a child.

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Preferably the load take up member comprises a spring.

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In one embodiment the spring is located at an upper portion of the window cover and has one end connected to a top rail of the window cover and a second end connected to the coupling member.

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In another embodiment the load take up member comprises an elastic member.

10 In one embodiment the elastic member is located at a lower portion of the window cover and has one end connected to the cover and another end connected to the coupling member.

15 Preferably the elastic member comprises an elastic loop or elastic band.

Brief Description of the Drawings

A preferred embodiment of the invention will be described, by way of example, with reference to the accompanying drawings in which:

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Figure 1 is a rear view of a Roman blind according to the preferred embodiment; and

Figure 2 is a detailed view of part of the blind of Figure 1;

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Figure 3 is a rear view of a Roman blind according to a second embodiment;

Figure 4 is a detailed view of part of the embodiment of Figure 3;

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Figure 5 is a view of a ring used in a Roman blind according to the preferred embodiment of the invention;

Figure 6 is a side view of the blind including the ring of Figure 5 to illustrate the operation of the ring of Figure 5;

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Figure 7 is a front view of a further embodiment of the invention;

Figure 8 is a side view of the embodiment of

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Figure 7;

Figure 9 is a side view of the blind of Figure 8 partly rolled up;

Figure 10 is a rear view of part of the blind of
5 Figure 7;

Figure 11 is a more detailed view of part of the componentry of Figure 10;

Figure 11 is a view of a still further embodiment of the invention; and

10 Figure 12 is a detailed view of part of the embodiment of Figure 11.

Detailed Description of the Preferred Embodiments

With reference to the drawings, the invention is
15 exemplified with reference to a Roman blind. However, it should be understood that window covers of other types may also embody the invention.

With reference to Figure 1, a Roman blind 10 is shown
20 which has a plurality of blind sections 12, 14 and 16 which overlap one another when the blind is in the open condition, and which drop to cover a window opening when the blind is closed. Each of the sections 12, 14 and 16 is provided with a ring 18 which may be semi-circular in
25 configuration, and an end ring 21 is provided on the bottom section 30 of the blind. A draw cord 50 passes through the rings 18 and 21 to a pulley arrangement 32 at the top of the blind and then extends down beside the blind as shown by 50' in Figure 1. The cord 51 may be
30 provided in two strands which are cut, rather than form a loop, so that one of the strands is pulled to open the blind and the other is pulled to close the blind. The cord 50 is provided with a connector member 52 which, when the blind is in the open configuration shown in Figure 1,
35 is generally adjacent the pulley 32. When the blind is to be opened, the connector 52 will move downwardly through the rings 18 as the segments 12, 14, 16 drop relative to

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one another.

When the blind is in the open configuration, the possibility exists that the draw cord 50 between the ring
5 21 and the pulley arrangement 33 can be pulled into a loop which may provide a strangling hazard to a child. In order to prevent this from happening, the connector member 52 is provided which will break apart when a predetermined load is applied to the cord 50 such as a load greater than
10 3 pounds so that the loop will not form and therefore a strangling hazard will not result.

Figure 2 shows a more detailed view of the connector member 52. The connector member 52 has a first component
15 60 which has a generally spherical head 62 which is defined by a circumferential groove 64. A bore 66 extends all of the way through the component 60 and has a large diameter portion 66' towards its lower end. Draw cord 50 is cut and a first part 50a is passed through the bore 66
20 and then tied to form a knot 53. The draw cord part 50a is then pulled upwardly in the direction of arrow A so the knot 53 returns to the enlarged diameter bore 66' and will seat at the transition 67 between the large diameter portion 66' and the more narrow diameter portion 66'' in
25 Figure 2.

The connector 52 has a second component 70 which has a generally spherical socket 72 which receives the head 62. The component 60 is also provided with a bore 74 which has
30 an enlarged diameter portion 74' and a more narrow diameter portion 74''. The draw cord part 50b which is cut from the part 50a is passed through the bore 74 and is tied to form a knot 55. The knot 55 is drawn back into the component 70 by pulling the cord 50b in the direction
35 of arrow B so that the knot registers at the transition 59 between the large diameter bore 74' and the more narrow diameter bore portion 74''.

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If a load is applied to the cord 50, such as in the direction of arrow B shown in Figure 2, the load will pull the socket 72 free of the head 62 to break the connector 52 as previously described, and thereby prevent a loop from forming in the draw cord 50 between the pulley arrangement 32 and the ring 21.

Thus, a loop which may form a strangling hazard is therefore prevented because as soon as any load is applied to the cord, such as may occur if a child was to become entangled in the cord 50, the weight of the child will cause the connector 52 to release, thereby breaking the loop to prevent a strangling hazard.

The load at which the connector member 52 releases can be selected depending on the relative rigidity of the socket 72 compared to the head 62 and, depending on the application, may be less than 3 pounds or more than 3 pounds.

Figures 3 and 4 show a second embodiment of the invention also applied to a Roman blind 10. This embodiment shows the sections 12, 14 and 16 as well as bottom section 30 and top section 31. The sections are separated by a wooden slat 35 and the sections 12, 14 and 16 are provided with D rings 18, as in the earlier embodiment. A head rail 40 is arranged at the top of the blind 10 for securing the blind 10 to a wall adjacent a window. The head rail 40 carries the pulley and locking arrangement 42 and pulley arrangement 44 for draw cords 46 and 47. The draw cord 46 passes through the pulley and locking arrangement 42 and has a bead 49 at its free end. The draw cord 47 passes through the pulley arrangement 44 and the pulley and locking arrangement 42 and has a bead 51 at its end. The pulley arrangements 42 and 44 are conventional, and therefore need not be described in

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detail. In order to raise the blind, the cords 49 and 51 are pulled downwardly, and the blind can be locked in a raised position by moving the end parts of the cords 46a and 47a laterally. The blind is released by an opposite
5 type movement, and by releasing the cords 46 and 47 so the cords can drop through the pulley arrangements 42 and 44.

Coupling members 100 are arranged at the bottom of the cords 47 and 48. Once again, the coupling members are
10 provided with a first component 101 (see Figure 4) and a second component 102. The first component 101 is attached to the blind 10 and the second component 102 is attached to the respective draw cord 46 or 47.

15 As is best shown in Figure 4, the component 101 has a triangular body 105 which has oblique arms 106 and 107 and a base 108. The base 108 is connected to the curtain 10 by a cloth saddle 103 which is sewn to the blind 10 and wraps over the base 108. The body 105 has a sleeve 109
20 which is hollow and which is provided with internal abutment 110.

The second component 102 is in the form of a peg 120 having legs 111 and 112 which have feet 113 and 114. The
25 peg 120 is resilient so that the legs 112 can move towards one another to close slot 115 but are biased outwardly by the resiliency of the peg 120 towards the position shown in Figure 4.

30 In order to connect the component 101 to the component 102, the legs 111 and 112 are inserted into sleeve 109. The insertion of the legs is facilitated by the inclined bottom surfaces 119 of the feet 113 and 114 which facilitate in pushing the legs together to close the slot
35 so the legs can pass into the recess and then move downwardly so that the feet locate over the abutment 110 again by the legs being pushed together and further

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closing the slot 115. When the feet 113 and 114 locate behind the abutment 110, the legs 111 bias outwardly so the legs are fully retained by engagement of the feet 113 and 114 behind the abutment 110.

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As is best shown in Figure 4, cord 46 (and cord 47 of the other connector shown in Figure 3) is connected to the component 102 by tying the cord 46 through a hole 119 in the peg 120.

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Once again, the coupling member 100 is adapted to release when a predetermined load is applied to the cord 46, such as a load of about 3lbs. Thus, if a child becomes entangled in the cords 46 and 47, rather than form a loop which may strangle a child, the coupling member 100 will simply release, thereby preventing the formation of a loop in which a child can become tangled.

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As in the earlier embodiments, the component 102 is sized so that it can easily pull through the D rings 18 of the blind 10 if necessary.

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The coupling member shown in Figure 4 can also be used in the same fashion as Figures 1 and 2, in which the coupling member is located in the cord by connecting one component of the coupling member to one part of the cord, and the other component to another part of the cord rather than connecting one of the components directly to the blind. Such an embodiment may be used in roll up blinds or other forms of blinds, and a connector may be located at a top part of the blind in the draw cord.

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If this is the case, the connector can be turned upside down and the component 101 can be easily connected to one part of the cord by tying the cord through opening 121 of the component 102.

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Figure 5 is a view of one of the rings 18 according to the preferred embodiment of the invention. As shown in Figure 5, the ring 18 is provided with a gap 70 which is preferably of slightly smaller width than the diameter or width of the cord 46 (or 47). The gap 70 is defined by side parts 72 of the ring 18 and can generally be formed by simply forming a cut or space in the ring 18 so the ring is not completely "annular" when the ring 18 is moulded. In other embodiments, the ring 18 could be provided with a split and the parts 72 could effectively touch one another. The ring 18 is generally formed from plastics material and the parts 72 are therefore resilient. Preferably the ring 18 is slightly oval in shape, as best shown in Figure 5, and includes a base portion 73 which includes indentations or undulations 75 to facilitate sewing of the ring 18 to the blind 30 by stitching 74. The indentations 75 ensure that the ring 18 is sewn to the blind 30 so the ring 18 cannot slide through the stitching 74, and thereby maintains the gap or split 70 at a position which is remote from the blind 30 when the ring 18 stands out from the blind 18 at an angle of about 90°.

The purpose of the gap 70 is to enable the cord 50 to release from the ring 18 if a load is applied to the cord 18 and that load is applied to the ring 18 rather than through to the coupling member 100.

As is shown in Figure 6, it is possible that when the blind is partly in the closed condition and a load is applied to the cord 46, such as in the direction of arrow Z in Figure 6, the load may be taken by the ring 18 and not applied through to the coupling member 100, and therefore the coupling member 100 will not release in the manner previously described. In this instance, all of the load is taken by the ring 18 rather than transmitting through to the coupling member 100. However, according to

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the preferred embodiment, because the ring 18 includes the gap or cut 70 when the load is applied to the cord 50 in the direction of arrow Z and that load is then transmitted to the ring 18, the cord 46 will pull through the gap 70 by slightly deforming the parts 72 of the ring 18, and therefore release from the ring 18. This will enable the load to be transmitted to the coupling member 100 and for the coupling member 100 to release in the manner previously described.

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Thus, the embodiment shown in Figure 5 overcomes the possibility that a child may become entangled in the cord 50 and the load not be transmitted through to the coupling member 100 so the coupling member releases. By ensuring that the cord 50 can release from the rings 18, this ensures that the load will be transmitted through to the coupling member 100 and the coupling member 100 will release as previously described, and therefore avoid the possibility of a strangling hazard.

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Whilst in the preferred embodiment of the invention, two cords 46 and 47 are provided, more cords may be provided to ensure that the cords are able to support the weight of the blind during normal opening and closing movement of the blind without causing the coupling member 100 to release. Thus, if the coupling member releases with a load of three pounds, each cord 46, 47, etc. should take less than three pound load during normal operation of the blind.

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Obviously all of the cords associated with the blind will be provided D-rings 18 of the type described with reference to Figure 5.

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Figures 7 to 10 show a still further embodiment of the invention which is applicable to heavier blinds and, in particular, to roll up blinds. Because of the weight of

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roll up blinds and similar blinds, the possibility exists that during opening and closing of the blind, the weight of the blind and any jerking movement of the draw cord during opening or closing of the blind may result in a short duration load on the draw cord which may cause separation of the coupling member of the type described in the earlier embodiments. This unwanted separation is inconvenient because it requires the coupling members to be re-engaged so the blind can be properly opened and closed and the unwanted separation may cause the blind to drop during opening or closing. Whilst this issue is addressed in the embodiments of Figures 7 to 10, these embodiments also provide for separation of the coupling member 100 in the same manner as previously described, so as to avoid a strangling hazard.

With references to Figures 7 to 10, a roll up blind 200 is shown which has a cover portion 210 which may be formed from fabric, wooden slats or the like. The blind 200 has a top rail member 211 from which the cover portion 210 is suspended. Pulley arrangements 212 guide draw cords 214 and 215 to the cover portion 10 so the draw cords extend down the front surface of the blind as shown in Figure 7, beneath the blind and up along the back surface of the blind for coupling to the rail 211, as is best shown in Figure 8.

When the draw cords 214 and 215 are pulled, the draw cords rise relative to the rail 211 and therefore roll up the blind so as to open the blind as shown in Figure 9. To lower the blind, the draw cords 214 and 215 are released in the conventional manner and the weight of the blind will enable the blind to lower pulling the draw cords 214 and 215 through the pulley arrangements 212 as the blind 210 unrolls into the fully open position.

As is best shown in Figures 8 and 9, the draw cords 214

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and 215 are provided with a coupling member 100 which may be identical to the coupling members previously described in the earlier embodiments. However, in this embodiment, component 101' of the coupling member is connected to draw
5 cord 215 or 214 as the case may be, and the other component 102' is connected to a coil spring 220. The other end of the coil spring 220 is connected to a bracket or fastener 221 which is connected to the rail 211.

10 The springs 220 provide a load take up mechanism which takes up short duration loads which may be applied to the draw cords 214 and 215 during opening or closing of the blind 200 because of improper use of the draw cords 214 and 215. For example, if the cords 214 and 215 are not
15 smoothly lowered to open the blind and the blind is opened in a jerky fashion or the cords 214 and 215 are simply completely released so the cover portion 210 unrolls without any resistance, the weight of the cover portion 210 and the jerking movement will result in a short
20 duration momentary load applied to the draw cords 214 and 215, which may be above the load which would cause separation of the components 101' and 102'. However, the spring 220 will stretch and take up those loads before release of the components 101' and 102' and therefore
25 prevent release of the components upon application of a short duration momentary load.

If a child becomes entangled in the draw cord and a load is applied to the draw cord 214 or 215, that load will be
30 of greater duration and will stretch the spring 220 to its limit, whereupon the load is then immediately transferred to the components 102' and 101' so that the components 101' and 102' will separate in the same manner as described with reference to the earlier embodiments.

35 Typically the springs 220 will absorb loads which have a duration of less than about one second by virtue of the

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spring expanding, and this is sufficient to take up short duration loading which may occur during improper opening or closing of the cover portion 210. However, if a child becomes entangled in one of the draw cords 214 and 215, the load applied to the draw cords is obviously of much longer duration, and this will therefore cause the spring to stretch and then the components 101' and 102' to separate so as to prevent the formation of a loop in the draw cords which may present a strangling hazard.

Figure 11 is a more detailed view of the coupling member 100 used in the embodiment of Figures 7 to 11. In this embodiment the component 101' includes a pair of resilient legs 240 which have feet 241. The component 102' is provided with a pair of holes 242 in side portions of the component 102' in which the feet 241 engage to hold the components 101' and 102' together. However, when the longer duration load is applied to the draw cord 214 (or 215) the feet 241 are pulled out of the holes 242 so the components 102' and 101' release from one another.

Figures 12 and 13 show a still further embodiment of the invention in which a load take up member is applied to a Roman blind.

In this embodiment the Roman blind is configured generally in the same way as that of the embodiment of Figure 3 and they include rings as per the embodiment of Figure 5. Some of the details of the Roman blind of Figure 12 have been omitted for ease of illustration.

In the embodiment of Figure 12 the blind includes draw cords 250 which pass through rings 18. The draw cords 250 are connected to a coupling member 260 of the type described with reference to any of the previous embodiments. The coupling member 260 connects to an elastic member 270 which in turn is secured to a lower

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edge of the blind of Figure 12.

As shown in Figure 13 the elastic member 270 is preferably formed from a strap or length of elastic material and passes through an opening 261 in the coupling member 260. The two free ends of the strap 270 are then brought together as shown at 271a and 271b and the ends are stitched at 273 to the lower edge of the blind. Thus, a continuous loop or band of elastic material is provided which can stretch when load is applied to take up the load in the event of shock to prevent unwanted disconnection of the coupling member 260 in the same manner as described with reference to the earlier embodiment.

The elastic band type load take up member of the embodiment of Figures 12 and 13 is used in preference to the spring of the earlier embodiment because of the bottom of the blind it will form a more attractive appearance and will not tend to stretch as much as a spring. Thus, when the blind is pulled into the closed configuration the bottom panel of the blind will not droop because of the stretching of the band 270 which may occur if a relatively fine spring is used.

However, in the alternative embodiments the rubber band of the embodiment of Figures 12 and 13 could be used in the embodiment of Figures 7 to 11 and the spring of the embodiment of Figures 7 to 11 could be used in the embodiment of Figures 12 and 13.

Once again, in the embodiment of Figures 12 and 13 if a short duration load is applied to the blind such as if the blind is simply dropped when opening or closing and falls under its own weight the elastic member 270 will stretch and take up the load before the coupling member 260 separates. However, if a longer duration load is applied then the coupling member 260 will separate as in the

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previous embodiments to prevent a strangling hazard.

In the claims which follow and in the preceding description of the invention, except where the context
5 requires otherwise due to express language or necessary implication, the word "comprise", or variations such as "comprises" or "comprising", is used in an inclusive sense, ie. to specify the presence of the stated features but not to preclude the presence or addition of further
10 features in various embodiments of the invention.

Since modifications within the spirit and scope of the invention may readily be effected by persons skilled within the art, it is to be understood that this invention
15 is not limited to the particular embodiment described by way of example hereinabove.